

Development of an Optimal Stocking Strategy for Walleyes in Spirit, East Okoboji, and West Okoboji Lakes

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Spirit, East Okoboji, and West Okoboji lakes are part of an interconnected chain of glacial lakes, along the Iowa-Minnesota border known as the Iowa Great Lakes. The Iowa Great Lakes region is a popular vacation area with over one million visitors each year. Walleyes (*Stizostedion vitreum*) are popular gamefish in these lakes, and each year 30%-50% of the anglers specifically fish for walleyes even though walleyes constitute less than 1% of the total harvest of fish. Natural reproduction of walleye in the Iowa Great Lakes is extremely limited and so annual stockings of sac-fry and fingerlings have sustained these fisheries. Despite these stockings, population densities and harvests of walleye in these lakes have declined. Recent research has determined that most of the large fingerling walleyes stocked in the fall perished within 2-5 weeks after they were stocked into East Okoboji Lake. This high post-stocking mortality was most likely size related. We concluded that larger 7-8 inch fingerlings need to be stocked in order to reach our objectives in these lakes; however, the cost-effectiveness of these fish needs to be evaluated. Findings from this study will be used to determine the most effective and cost-efficient stocking strategy to meet management objectives while remaining within the production and budgetary constraints of the Spirit Lake Fish Hatchery.